

Hitachi Vision System MC-20S



Reduce Production waste by incorporating Hitachi's Vision System with our legendary small character printer.

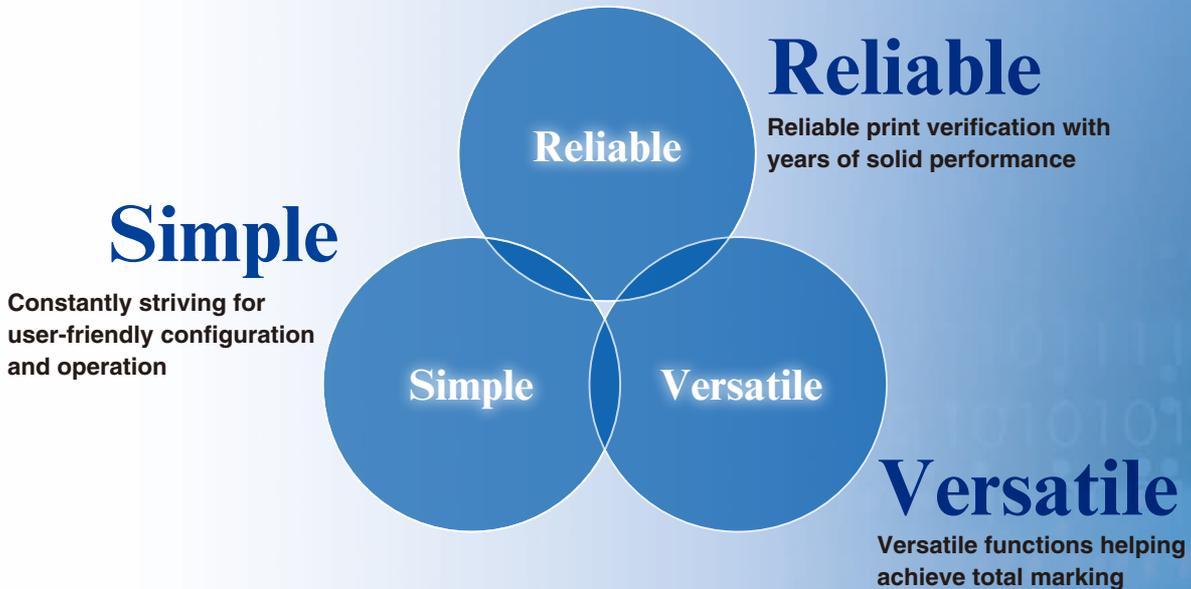
Hitachi Vision System MC-20S working with Hitachi IJ printer for total marking



Hitachi's Vision System MC-20S features a versatile, easy to use and quick starting interface. The forward-looking collaboration with Hitachi Printers means that the system instantaneously checks date and serial numbers for error.

The Vision System not only eliminates printing errors which visual checks may overlook, but also by adopting HITACHI's unique adjustable method, it also prevents unnecessary product rejection resulting in a significant savings.

As a key component to Hitachi Industrial Equipment, the MC-20S becomes an effective complement to Hitachi IJ printers.



Features

- HITACHI original adjustable matching method optimally suited for ink jet printers
- Featuring a color camera for flexible print verification
- Dedicated white LED strobe lighting and controller power supply * For models with lights
- Optimally adjusted focus and lighting previously reliant on individual intuition
- Print interpretation (Binarization) setup is easier, by suggesting the optimal color filter values



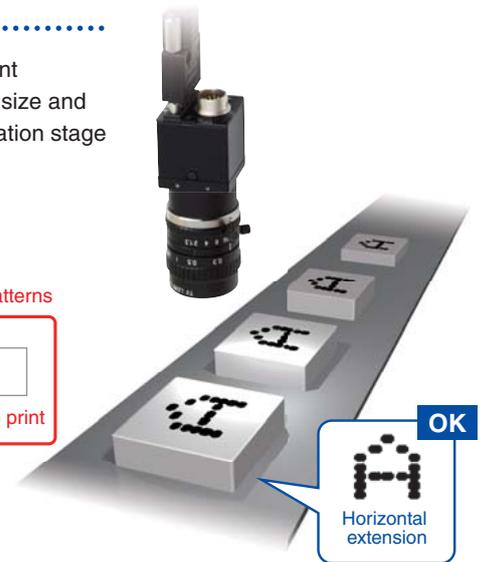
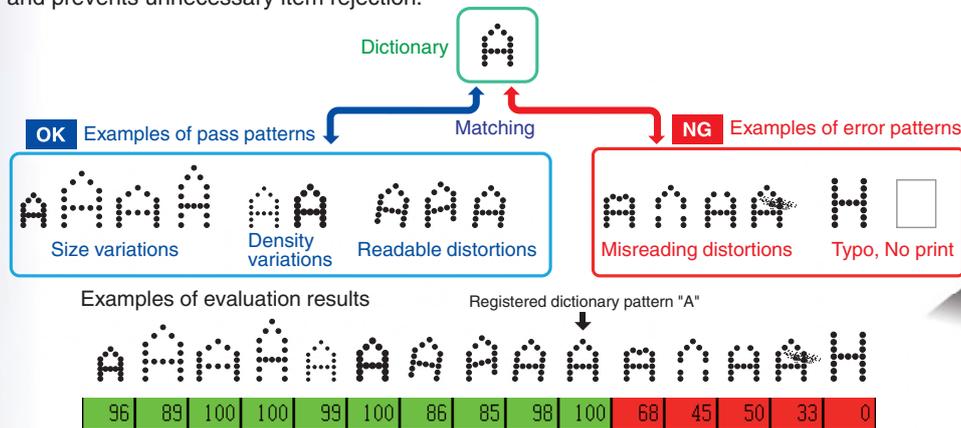
Reliable

Human-like assessment

Matching verification method

Adjustable matching

HITACHI original adjustable matching method is adopted to enable human-like assessment according to changes in the size and line thickness of dot fonts. This allows the character size and tilt, which would otherwise be judged NG by general image verification, to pass the verification stage and prevents unnecessary item rejection.



* These values are the examples of evaluation results by matching the actual print results to the registered dictionary patterns.

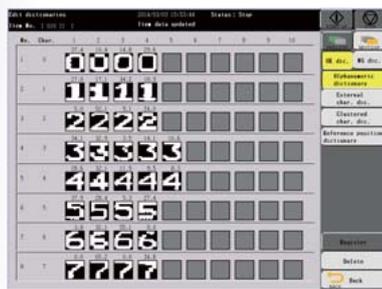
* These are the values by Hitachi's own evaluation conditions. They may vary according to the customer's evaluation conditions.

Matching principle

Adjustable Matching is a verification method allowing changes in the size and line thickness which may occur in marking by ink jet printers. By combining the latest image processing technology, this method offers flexible print verification.

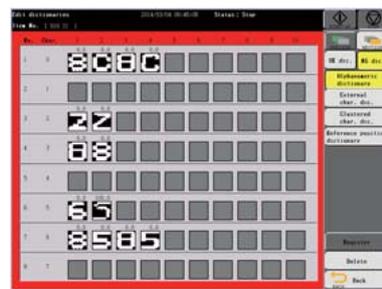
OK dictionary registration

Printed characters which users wish to be judged OK can be registered in the dictionary, which offers human-like assessment.



NG dictionary

Characters which are likely to be mistakenly read can be registered as NG characters. Registering character patterns users want to reject allows more precise print verification.



Italic cutout

It was previously difficult to judge the boundaries between italic characters due to their crossover tendency. Using diagonal cutout, Hitachi Vision System MC-20S has resolved this issue.

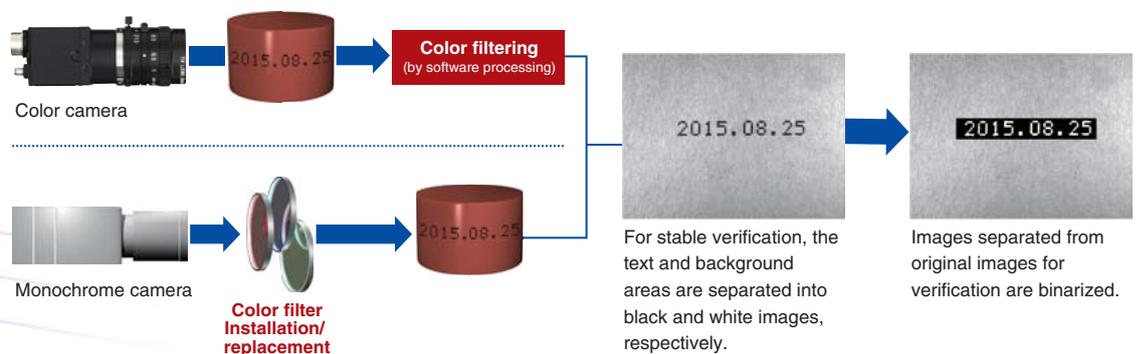


Screen of diagonal cutout

Providing flexible print verification

Corresponding to color camera

A color camera can be used to judge color differences that would not otherwise be identifiable by a monochrome camera. Software color filters eliminate the need for users to select lighting and install color filters.

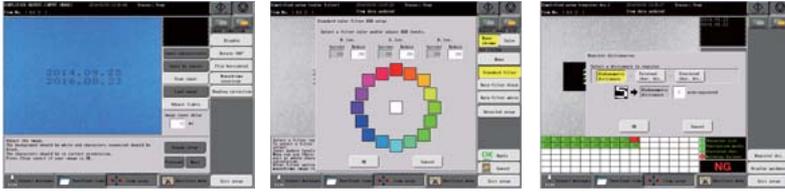


Simple

Supporting the setup process

Simplified adjustment guide

Simplified item setup by following the on-screen guidance.



Recommended value guide....

For general verification, parameters, such as “setting binarized level” and “setting color filter”, which may have a significant impact on verification preciseness, are displayed on screen for a user-friendly configuration, which would be conventionally difficult without professional knowledge.



Adjust binary threshold levels so that binarized shapes represent corresponding characters.
Increase levels for thicker shapes, or decrease levels for thinner shapes.
The values displayed on the right are threshold levels recommended for each area.
If the value in (), which indicates contrasts, is not less than 40, the recommended level is applicable for the area.

AREA 1	169 (82)
AREA 2	171 (80)
AREA 3	
AREA 4	
AREA 5	
AREA 6	



Digital display of focus and diaphragm

Utilities

Optimally configured focus and diaphragm, which were previously reliant on operator's experience and intuition, are displayed as numeric readings.

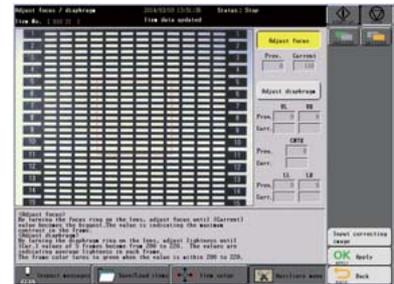
Various adjustments by checking the numeric data carry simple setting.

Assisted focal adjustment

The point with the highest focal value of manual adjustment is found and displayed at the appropriate focal position on screen.

Setting of lighting and adjustment of diaphragm

The densities (lighting) of the center and four corners are displayed when capturing the white image, which allows checking for uniform and appropriate lighting.



Versatile

Supporting precise print verification

Various corrective functions available

Rotation correction

Even where the moving work rotates ($\pm 180^\circ$), the immediate rotation correction allows stable print verification.

Reference position correction

The print position of characters and logo marks can be set as reference values, which allows immediate catch-up for correction, even if the work position moves back and forth and around.

Automatic adjustment to print data changes

Calendar and count-up

The calendar and count function are built in for automatic catch-up with print data change such as the date of manufacture, best-before date, and serial lot number. The offset function is provided for automatic calculations in compliance with the period (offset) setting.

Reinforced by combination

Collaboration with Hitachi IJ printers

High-level collaboration with Hitachi IJ printer. Switching items and changing printed characters on the printer side can be automatically aligned with the Vision System.

Storage of verification results and error patterns

Traceability and image saved

The time and the verification results can be saved as traceability information.

Specifications

Item	Model	
	MC-20SW1	MC-20SW0
Number of registered items	240 items	
Number of verification areas	Max. 6 areas	
Number of verification characters	Max. 16 characters per area	
Verification characters	Characters marked by IJP, laser, thermal and stamp	
Tilt of characters	Within $\pm 3^\circ$	
Verification method	Character matching, presence and area	
Character dictionary	20 patterns per font (OK characters: 10 patterns, NG characters: 10 patterns) Block: 8 patterns	
Speed	400 pieces/ min ^{*1}	
Counter display	Total verified, pass and error patterns	
Correction function	Rotation correction ($\pm 180^\circ$), reference position correction, shading correction	
Rotation correction	Search range: $\pm 180^\circ$	
Tilt cutting	$\pm 30^\circ$	
Substitution	Alphanumeric substitution of year, month, date and time; count-up random verification	
Save of images	Latest NG images: 100; latest OK images: 8	
Result signal output	Strobe	

*1 The number varies depending on the verification details.

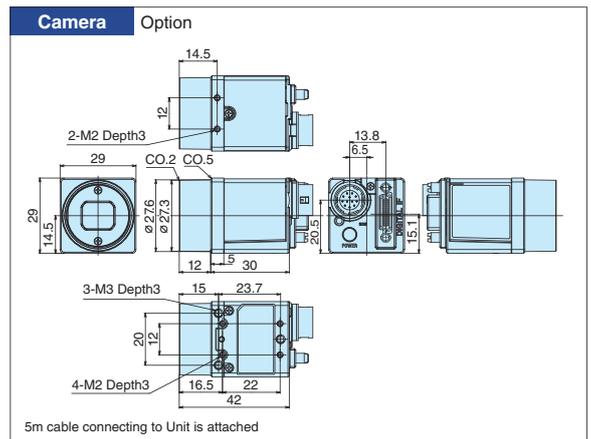
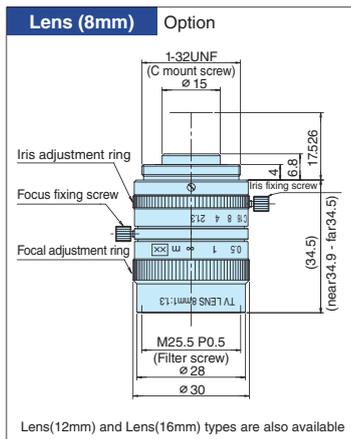
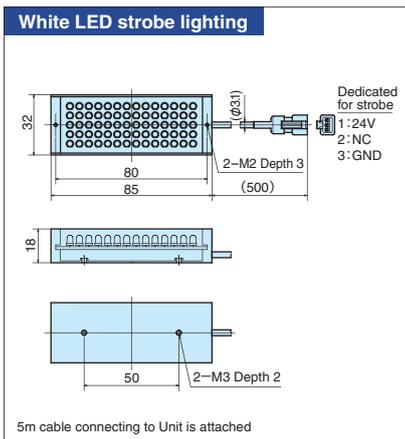
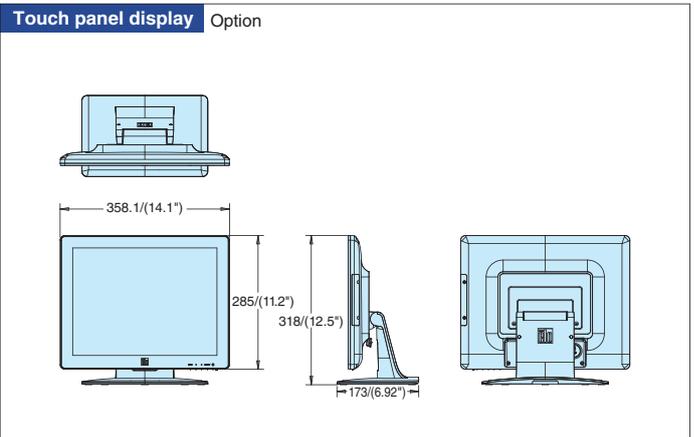
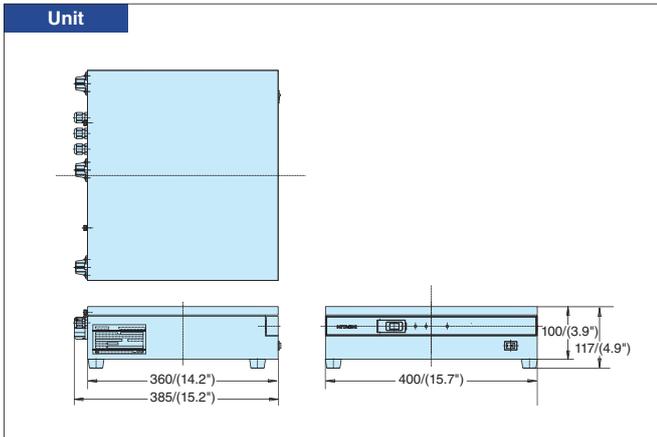
Specifications

Item	Model	
	MC-20SW1	MC-20SW0
Touch panel display interface	15.0 inch TFT LCD, Resistive touch panel	
Camera Interface	Color VGA, or Monochrome VGA camera	
Connectable cameras	1	
Light	White LED strobe lighting x 2	—
Light controller	Dedicated light controller	—
External memory	USB port x 2	
Data interface	RS-232C	
Input signal	Verification sensor, encoder, error reset, count reset, test mode	
Output signal	Display light, verification result, verification ready, unit ready, verification complete, test mode, external strobe	
Power supply	AC100–120/200–240V $\pm 10\%$, 50/60Hz	
Electricity consumption	120VA or lower	
Ambient temperature and humidity	0–40°C/32–104°F, 30–80%RH	
Operating environment	No condensation, no dust, nor corrosive gas	
Weight	Approx. 8kg/18lbs	

Option

- Touch panel display
- Lens(8mm)/Lens(12mm)/Lens(16mm)
- Camera: Color camera/Monochrome camera

External dimensions [mm/(inch)]



Information in this brochure is subject to change without notice.

Hitachi Industrial Equipment Systems Co., Ltd.

For further information, please contact your nearest sales representative.

